Amendment to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-24 (canceled).

Claim 25 (previously presented): A computer-implemented method for reprogramming an active packet switching router without interfering with packet flow, said method comprising:

receiving a software upgrade message at a currently active packet switching device (A);

halting receipt of new packets at said packet switching device (A) upon receipt of said software upgrade message;

transferring protocol state information, including routing tables, negotiated state information, authorization status and learned routing state information, from said packet switching device (A) to a currently inactive packet switching device (B);

reprogramming said packet switching device (B);

sending a message requesting activation from said packet switching device (A) to said packet switching device (B);

de-activating said packet switching device (A) and activating said reprogrammed packet switching device (B) to handle packet flow previously handled by said packet switching device (A), including beginning receipt of new packets at said packet switching device (B);

reprogramming said packet switching device (A), including retrieving new packet processing software from a remote location; and thereafter

de-activating said packet switching device (B) and re-activating said packet switching device (A).

Claim 26 (previously presented): The method of claim 25 wherein reprogramming said packet switching device (B) comprises retrieving new packet processing software from a remote location.

Claim 27 (previously presented): The method of claim 25 wherein said protocol state information comprises register values.

Claim 28 (previously presented): The method of claim 25 further comprising:

operating said packet switching device (A) as a back-up after de-activating said packet switching device (A).

Claim 29 (previously presented): A computer-implemented method for reprogramming an active packet switching router without interfering with packet flow, said method comprising:

receiving a software upgrade message at a currently active packet switching device (A);

halting receipt of new packets at said packet switching device (A) upon receipt of said software upgrade message;

transferring protocol state information comprising register values including routing tables, negotiated state information, authorization status and learned routing state information, from said packet switching device (A) to a currently inactive packet switching device (B);

sending a message requesting activation from said packet switching device (A) to said packet switching device (B);

de-activating said packet switching device (A) and activating said reprogrammed packet switching device (B) to handle packet flow previously handled by said packet switching device (A), including beginning receipt of new packets at said packet switching device (B);

reprogramming said packet switching device (A), including retrieving new packet processing software from a remote location; and thereafter

de-activating said packet switching device (B) and re-activating said packet switching device (A).

Claim 30 (previously presented): The method of claim 29 further comprising:

reprogramming said packet switching device (B) prior to activating said packet switching device (B) including retrieving new packet processing software from a remote location.

Claim 31 (previously presented): The method of claim 29 further comprising:

operating said packet switching device (A) as a back-up after de-activating said packet switching device (A).

Claim 32 (currently amended): A computer-readable storage medium encoded with a computer program-product that reprograms an active packet switching router without interfering with packet flow, said-product computer program comprising:

code that receives a software upgrade message at a currently active packet switching device (A);

code that halts receipt of new packets at said packet switching device (A) upon receipt of said software upgrade message;

code that transfers protocol state information, including routing tables, negotiated state information, authorization status and learned routing state information, from said packet switching device (A) to a currently inactive packet switching device (B);

code that sends a message requesting activation from said packet switching device (A) to said packet switching device (B);

code that reprograms said packet switching device (B) before said packet switching device (B) is activated;

code that de-activates said packet switching device (A) and activates said packet switching device (B) to handle packet flow previously handled by said packet switching device (A);

code that reprograms said packet switching device (A) after de-activation,
including code that retrieves new packet processing software from a remote location;
and

code that de-activates said packet switching device (B) and re-activates said
packet switching device (A) after reprogramming; and

~~a computer-readable storage medium that stores the codes~~.

Claim 33 (currently amended): The ~~product~~ computer-readable storage medium
of claim 32 wherein said code that reprograms said packet switching device (B)
comprises code that retrieves new packet processing software from a remote location.

Claim 34 (currently amended): The computer-readable storage medium ~~product~~
of claim 32 wherein said protocol state information comprises register values.

Claim 35 (currently amended): The computer-readable storage medium ~~product~~
of claim 32 further comprising:

code that operates said packet switching device (A) as a back-up after said
packet switching device (A) is de-activated.

Claim 36 (currently amended): A computer-readable storage medium encoded
with a computer program ~~product~~ that reprograms an active packet switching router
without interfering with packet flow, said ~~product~~ computer program comprising:

code that receives a software upgrade message at a currently active packet
switching device (A);

code that halts receipt of new packets at said packet switching device (A) upon
receipt of said software upgrade message;

code that transfers protocol state information comprising register values
including routing tables, negotiated state information, authorization status and learned
routing state information, from said packet switching device (A) to a currently inactive
packet switching device (B);

code that sends a message requesting activation from said packet switching device (A) to said packet switching device (B);

code that de-activates said packet switching device (A) and activates said packet switching device (B) to handle packet flow previously handled by said packet switching device (A);

code that reprograms said packet switching device (A) after de-activation, including code that retrieves new packet processing software from a remote location; and

code that de-activates said packet switching device (B) and re-activates said packet switching device (A) after reprogramming

~~; and~~

~~a computer-readable storage medium that stores the codes~~.

Claim 37 (currently amended): The ~~product~~ computer-readable storage medium of claim 36 further comprising:

code that reprograms said packet switching device (B) before said packet switching device (B) is activated and further comprising code that retrieves new packet processing software from a remote location.

Claim 38 (currently amended): The ~~product~~ computer-readable storage medium of claim 36 further comprising:

code that operates said packet switching device (A) as a back-up after said packet switching device (A) is de-activated.

Claim 39 (previously presented): A packet switching system comprising:

a currently active packet switching device (A);

a packet switching device (B); and

a memory system storing:

code that receives a software upgrade message at said packet switching device (A);

code that halts receipt of new packets at said packet switching device (A) upon receipt of said software upgrade message;

code that transfers protocol state information, including routing tables, negotiated state information, authorization status and learned routing state information, from said packet switching device (A) to said packet switching device (B);

code that sends a message requesting activation from said packet switching device (A) to said packet switching device (B);

code that reprograms said packet switching device (B) before said packet switching device (B) is activated;

code that de-activates said packet switching device (A) and activates said packet switching device (B) to handle packet flow previously handled by said packet switching device (A);

code that reprograms said packet switching device (A) after de-activation, including code that retrieves new packet processing software from a remote location; and

code that de-activates said packet switching device (B) and re-activates said packet switching device (A) after reprogramming.

Claim 40 (previously presented): The system of claim 39 wherein said code that reprograms said packet switching device (B) comprises code that retrieves new packet processing software from a remote location.

Claim 41 (previously presented): The system of claim 39 wherein said protocol state information comprises register values.

Claim 42 (previously presented): The system of claim 39 further comprising:

code that operates said packet switching device (A) as a back-up after said packet switching device (A) is de-activated.

Claim 43 (previously presented): A packet switching system comprising:

a currently active packet switching device (A);

a packet switching device (B); and

a memory system storing:

code that receives a software upgrade message at said packet switching device (A);

code that halts receipt of new packets at said packet switching device (A) upon receipt of said software upgrade message;

code that transfers protocol state information comprising register values including routing tables, negotiated state information, authorization status and learned routing state information, from said packet switching device (A) to said packet switching device (B);

code that sends a message requesting activation from said packet switching device (A) to said packet switching device (B);

code that de-activates said packet switching device (A) and activates said packet switching device (B) to handle packet flow previously handled by said packet switching device (A);

code that reprograms said packet switching device (A) after de-activation, including code that retrieves new packet processing software from a remote location; and

code that de-activates said packet switching device (B) and re-activates said packet switching device (A) after reprogramming.

Claim 44 (previously presented): The system of claim 43 further comprising:

code that reprograms said packet switching device (B) before said packet switching device (B) is activated and further comprising code that retrieves new packet processing software from a remote location.

Claim 45 (previously presented): The system of claim 43 further comprising:

code that operates said packet switching device (A) as a back-up after said packet switching device (A) is de-activated.

Claim 46 (previously presented): A packet switching system comprising:

a currently active packet switching device (A);

a currently inactive packet switching device (B); and

a memory system storing:

code that receives a failover message at said currently active packet switching device (A);

code that then transfers protocol state information, including routing tables, negotiated state information, authorization status and learned routing state information, from said packet switching device (A) to said packet switching device (B);

code that reprograms said packet switching device (B) before said packet switching device (B) is activated;

code that de-activates said packet switching device (A), including code that sends a message requesting activation from said packet switching device (A) to said packet switching device (B) and code that halts receipt of new packets at said packet switching device (A) upon receipt of said failover message, and that activates said packet switching device (B), including code that begins receipt of new packets at said packet switching device (B);

code that reprograms said packet switching device (A) after said packet switching device (A) is de-activated, including code that retrieves new packet processing software from a remote location; and

code that reprograms said packet switching device (B) before said packet switching device (B) is activated.

Claim 47 (previously presented): The system of claim 46 wherein said code that reprograms said packet switching device (B) comprises code that retrieves new packet processing software from a remote location.

Claim 48 (previously presented): The system of claim 46 wherein said protocol state information comprises register values.

Claim 49 (previously presented): The system of claim 46 further comprising:

code that operates said packet switching device (A) as a back-up after said packet switching device (A) is de-activated.

Claim 50 (previously presented): A packet switching system comprising:

a currently active packet switching device (A);

a packet switching device (B); and

a memory system storing:

code that receives a software upgrade message at said packet switching device (A);

code that halts receipt of new packets at said packet switching device (A) upon receipt of said software upgrade message;

code that transfers protocol state information comprising register values including routing tables, negotiated state information, authorization status and learned routing state information, from said packet switching device (A) to said packet switching device (B);

code that sends a message requesting activation from said packet switching device (A) to said packet switching device (B);

code that de-activates said packet switching device (A) and activates said packet switching device (B) to handle packet flow previously handled by said packet switching device (A);

code that reprograms said packet switching device (A) after de-activation, including code that retrieves new packet processing software from a remote location;

code that de-activates said packet switching device (B) and re-activates said packet switching device (A) after reprogramming; and

code that reprograms said packet switching device (B) before said packet switching device (B) is activated.

Claim 51 (previously presented): The system of claim 50 further comprising

code that reprograms said packet switching device (B) before said packet switching device (B) is activated and further comprising code that retrieves new packet processing software from a remote location.

Claim 52 (previously presented): The system of claim 50 further comprising:

code that operates said packet switching device (A) as a back-up after said packet switching device (A) is de-activated.

Claim 53 (previously presented): A packet switching router having a packet switching devices, said router comprising:

means for receiving a failover message at a currently active packet switching device (A);

means for then transferring protocol state information, including routing tables, negotiated state information, authorization status and learned routing state information, from said packet switching device (A) to a currently inactive packet switching device (B);

means for sending a message requesting activation from said packet switching device (A) to said packet switching device (B);

means for halting receipt of new packets at said packet switching device (A) upon receipt of said failover message;

means for de-activating said packet switching device (A) and activating said packet switching device (B), including beginning receipt of new packets at said packet switching device (B); and

means for reprogramming said packet switching device (A) after de-activating said packet switching device (A), including retrieving new packet processing software from a remote location.

Claim 54 (previously presented): The router of claim 53 further comprising:

means for reprogramming said packet switching device (B) prior to activating said packet switching device (B).

Claim 55 (previously presented): The router of claim 54 wherein reprogramming comprises retrieving new packet processing software from a remote location.

Claim 56 (previously presented): The router of claim 53 further comprising:

means for operating said packet switching device (A) as a back-up after de-activating said packet switching device (A).

Claim 57 (previously presented): The method of claim 53 wherein said protocol state information comprises register values.

Claim 58 (previously presented): A packet switching router with a plurality of packet switching devices, said router comprising:

means for receiving a software upgrade message at a currently active packet switching device (A);

means for halting receipt of new packets at said packet switching device (A) upon receipt of said software upgrade message;

means for transferring protocol state information, including routing tables, negotiated state information, authorization status and learned routing state information, from said packet switching device (A) to a currently inactive packet switching device (B);

means for sending a message requesting activation from said packet switching device (A) to said packet switching device (B);

means for de-activating said packet switching device (A) and activating said packet switching device (B) to handle packet flow previously handled by said packet switching device (A), including beginning receipt of new packets at said packet switching device (B);

means for thereafter reprogramming said packet switching device (A), including retrieving new packet processing software from a remote location; and

means for thereafter de-activating said packet switching device (B) and re-activating said packet switching device (A).

Claim 59 (previously presented): The router of claim 58 further comprising:

means for reprogramming said packet switching device (B) prior to activating said packet switching device (B).

Claim 60 (previously presented): The router of claim 59 wherein reprogramming comprises retrieving new packet processing software from a remote location.

Claim 61 (previously presented): The router of claim 58 further comprising:

means for operating said packet switching device (A) as a back-up after de-activating said packet switching device (A).

Claim 62 (previously presented): The method of claim 58 wherein said protocol state information comprises register values.